JS 10/29/21
RJA 01/03/22

Chemistry Report for Case # P-18-0007

General

Submitter: Nexoleum USA Corp

Contact: [redacted] **Contact Telephone No.:** [redacted]

TS No.: JO3D83

Chemist: Zhang, L. **Contractor Support:** Y

PV Init (kg/yr): [redacted] **PV Max (kg/yr):** [redacted]

Binding Option: ☐ **Exposure-Based Review:** ☑

Manufacture: ☑ **Import:** ☑

CAS Number: 2097734-14-8

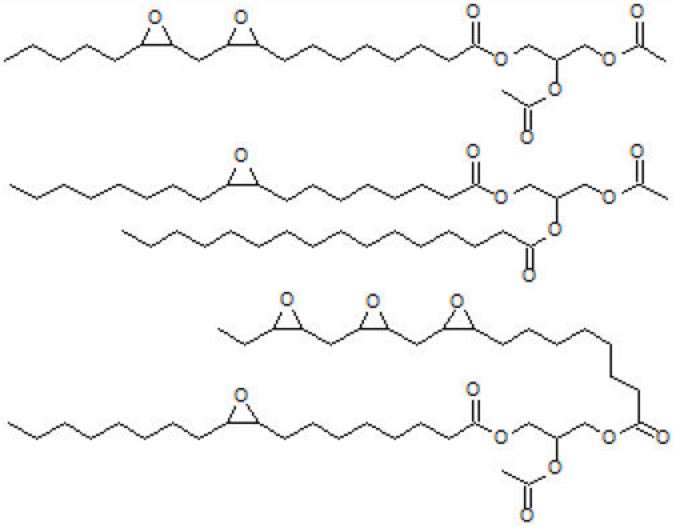
Chemical Name: Glycerides, soya mono- and di-, epoxidized, acetates

Trade Name: Nexo

IES Order: 420582-1

Generic Name: not CBI

Chemical Structure



Physical Chemical Properties

Molecular Formula:C25 H42 O8 **Molecular Weight:**470.81

% < 500:

% < 1000:

MP:

MP Estimate:

BP:

BP Pressure:

BP Estimate:474

VP (Torr):

VP Estimate (Torr):<0.000001

Water Solubility (g/L):

Water Soluble Estimate (g/L):0.00081

Log P:

Log P Estimate:5.19

Physical State — Neat: Liquid **Physical State — Manuf:**Solution: [redacted]

Physical State — Processing: Solid blend: 16.7% PMN substance entrained in PVC plastic

Physical State — End Use: Solid blend: PMN substance entrained in PVC plastic

Additional Chemical Info

The
structures as drawn are representative. The submitter states that the
substance is [redacted] The typical
fatty acid distribution for soybean oil is [redacted]
[redacted] The MW, MF and EPI estimations above are for the typical
[redacted] (top). Submitted Data: Liquid. A
1H NMR spectrum is provided for the mixture with [redacted]
[redacted]. The MSDS is for the same
mixture. Cont'd on p.6. Cont'd from p.2: Estimated Data [redacted]
[redacted];
VP
= 1.25E-07 torr; WS = 8.1E-04 g/L; log P = 5.19. Estimated Data [redacted]
[redacted]
BP =
622.99°C; VP = 1.84E-11 torr; WS = 2.63E-12 g/L; log P =
13.58.

Uses

Consumer Use? No

Use:	Plasticizer and stabilizer for flexible polyvinyl chloride (PVC) plastic [redacted] Consolidated Set P-18-07-08. Analogs [redacted] are for the same uses in PVC. P2REC: CRSS: forward. P2 Claims: The substance will be biodegradable, be a replacement for phthalate ester plasticizers, and have lower mammalian toxicity compared to the former.
Other Uses:	Analog [redacted]: plasticizer for water-based coatings; Analog [redacted]: polyol for use in polyurethane resin blends.

Reaction Description

[redacted]

[redacted]

Pollution Prevention Analysis(P2 Analysis:)

P2
Claims: Production of Nexo plasticizers will be from a biobased starting material: Soybean oil. In the future other vegetable oils may also be used, depending on the price of alternate oils. Nexo plasticizers are cost competitive with and will be replacements for petroleum-based plasticizers such as phthalates. Nexo plasticizers build upon well-known and widely used epoxidized soybean oil (ESO). ESO is an excellent PVC stabilizer, but is not an effective primary plasticizer for many PVC applications. The Nexo product is both a stabilizer and plasticizer and competes well with traditional products, including phthalate-based PVC plasticizers. Nexo plasticizers can completely replace phthalate-based PVC plasticizers in most applications. The Nexo plasticizers are produced from soybean oil or other vegetable oils, rather than petroleum-based feedstocks. These materials are safer to the environment due to the increased biodegradability of products and raw materials. They also have lower mammalian toxicity compared to the still-dominant phthalate plasticizers, such as di-2-ethylhexyl phthalate (DEHP), diisononyl phthalate (DINP), and diisooctyl phthalate (DIOP). The product will initially be imported, but Nexoleum anticipates transferring production to the U.S. to take advantage of the abundant and inexpensive soybean oil and other sources of vegetable oils. P2REC: CRSS:
forward.

Analogs

[redacted]

Comments/Telephone Log

Artifact	Update/Upload Time
[redacted]	[redacted]